

Appl. No. 09/641,449
Docket No. 6169-179
Reply to Office Action of August 26, 2003

IBM Docket No. GB9-2000-0034 US1

Amendments to the Specification:

Please replace the abstract with the following amended abstract:

a) This ~~publication~~ invention relates to the management, in an interactive voice response system, of a plurality of speech technology modules. In particular it relates to an apparatus and a method for dynamically determining which of a plurality of speech technology modules to use during voice interaction between the system and a user. In prior art IVR systems each speech technology module is configured for a specific application or task. Most speech technology modules have different lexicons for the range of functions but it is the full lexicon which can determine an ~~engines~~ engine's suitability for a language. For instance, one type of speech recognition engine is preferred for certain languages whereas IBM ViaVoice is a good general all rounder. Choosing one speech recognition module according to application or function alone is not entirely satisfactory and there is a need for improvement. The present solution is to select, for each interaction, one of the speech technology modules from the plurality of the modules to be used by the application according to the environment property of the interaction.

Please replace the paragraph beginning on page 1, line 34 and ending on page 2, line 3 with the following amended paragraph:

NE The application is necessary for defining the parameters needed in the speech recognition, focusing on the function of the particular interaction ignores that certain speech recognition engines are better than others for certain languages. Each module in the prior art is configured for a specific application. Most recognition engines have different lexicons for the range of functions but it is the full lexicon which can determine an ~~engines~~ engine's suitability for a language. For instance, one type of speech recognition engine is preferred for certain languages whereas IBM ViaVoice is a good general all rounder. Choosing one speech recognition module according to application

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alone is not entirely satisfactory when the application may be multilingual and there is a need for improvement.

Please replace the paragraph beginning on page 2, line ¹⁶16 and ending on page 2, line ¹⁸18 with the following amended paragraph:

92 In one aspect of the present invention there is provided an interactive voice response (IVR) system ~~as described in claim 1.~~

Please replace the paragraph beginning on page ³2, line ⁶25 and ending on page 2, line 36 with the following amended paragraph:

93 A further complexity with speech recognition over the telephone is the type of phone network that the call originates from. The characteristics of the voice channel from a land line telephone ~~is~~ are different from that from a mobile telephone, and that from a telephone using Voice over IP (Internet telephony) is different again. This is due to the use of differing voice compression techniques. In order to provide accurate and reliable speech recognition it is necessary to have a language model for the recogniser that matches the characteristics of the voice channel, so a different model is needed for each of land line, mobile and IP telephony. In the prior art, it would be necessary to attach one recogniser for each of these language models to every call to allow for calls from all types of telephone.

Please replace the paragraph beginning on page 5, line ³⁰21 and ending on page 5, line 25 with the following amended paragraph:

94 Speech technology selector 60 consists of a mapping configuration of environment properties to speech recognition modules 48A and 48B. During initialisation, the speech technology selector 60 reads the configuration and loads it into a ~~hashtable~~ hash table with the environment (e.g. locale) as the key.

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Please replace the paragraph beginning on page 5, line 34 and ending on page 5, line 39 with the following amended paragraph:

NE
When the application runs and requires speech recognition, the current environment is passed to the speech technology selector 60. Speech technology selector 60 looks up the locale in the hash table and finds out which technology is required. The speech technology selector 60 creates an instance of the selected technology module and passes the request for speech recognition or text-to-speech to that instance.

Please replace the paragraph beginning on page 13, line 6 and ending on page 13, line 28 with the following amended paragraph:

The steps of the method of the invention are described with reference to Figure 2. At step 1.1 the Caller dials from a telephone through the PBX into the IVR and an application is opened to handle the call. A welcome message as specified by the application is played (step 1.2) to the caller over the open telephone line using defined prompts or text and a text to speech module. An IVR application instruction to initiate a recognition interaction (such as a field entry bean) is located (step 1.3) and speech technology is needed to perform the recognition interaction. Program control is passed to the technology selector which acquires the environment from the application instruction or from the application itself and then looks up (step 1.5) an appropriate speech technology from the hash table. The technology selector creates (step 1.6) an instance of the selected speech technology. Next technology selector chooses (step 1.7) an appropriate set of parameters for the speech technology by looking in the parameter hash table based upon the environment property of the interaction and now the actual task property of the interaction. Once the parameters have been chosen, the speech technology starts the interaction (step 1.8). A voice prompt is played (step 1.9) eg e.g. "Please say your account number". A response is received and passed (step

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1.10) from recogniser back to application. The IVR is able to recognise (step 1.11) the account number spoken by caller and enter it into a field for processing. The next instruction in the IVR application is acquired (step 1.12) and the interaction with caller is continued through the rest of the application.

Please replace the paragraph beginning on page 14, line 13 and ending on page 14, line 15 with the following amended paragraph:

An example is ENUSD82A, which gives 8 channels of discrete recognition for US English. There are two sub vocabularies within this vocabulary file.